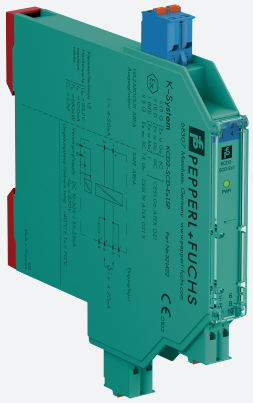


# SMART Current Driver

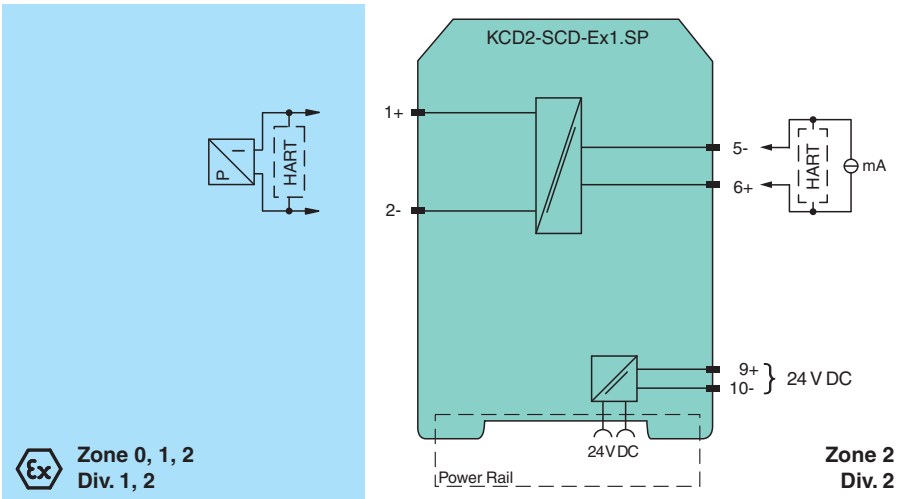
# KCD2-SCD-Ex1.SP

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Current output up to 650 Ω load
- HART I/P and valve positioner
- Lead breakage monitoring
- Housing width 12.5 mm
- Connection via spring terminals with push-in connection technology
- Up to SIL 2 acc. to IEC/EN 61508

## Function

This isolated barrier is used for intrinsic safety applications.
The device repeats the input signal from a control system to drive SMART I/P converters, electrical valves, and positioners located in a hazardous area.
Digital signals are superimposed on the analog values at the field side or control side and are transferred bi-directionally.
The current is transferred via a DC/DC converter and repeated at the output terminals.
An open field circuit presents a high impedance to the control side to allow alarm conditions to be monitored by the control system.
Test sockets for the connection of HART communicators are integrated into the terminals of the device.

## Connection




## Technical Data

| | | |
|---|---|---|
| **General specifications** | | |
| Signal type | | Analog output |
| **Functional safety related parameters** | | |
| Safety Integrity Level (SIL) | | SIL 2 |
| **Supply** | | |
| Connection | | Power Rail or terminals 9+, 10- |
| Rated voltage | $U_r$ | 19 ... 30 V DC |
| Ripple | | ≤ 10 % |
| Rated current | $I_r$ | ≤ 30 mA at 24 V |
| Power dissipation | | ≤ 600 mW at 20 mA and 500 Ω load |

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## Technical Data

| | | |
|---|---|---|
| Power consumption | | ≤ 700 mW |
| **Input** | | |
| Connection side | | control side |
| Connection | | terminals 5-, 6+ |
| Input signal | | 4 ... 20 mA , limited to approx. 26 mA |
| Input voltage | | open loop voltage of the control system < 30 V |
| Voltage drop | | approx. 6 V at 20 mA |
| Input resistance | | > 100 kΩ, with field wiring open |
| **Output** | | |
| Connection side | | field side |
| Connection | | terminals 1+, 2- |
| Voltage | | ≥ 13 V at 20 mA |
| Current | | 4 ... 20 mA |
| Load | | 0 ... 650 Ω |
| Ripple | | 20 mV $_{rms}$ |
| **Transfer characteristics** | | |
| Deviation | | at 20 °C (68 °F), 4 ... 20 mA<br>< 0.1 % of full scale, incl. non-linearity and hysteresis |
| Influence of ambient temperature | | < 2 µA/K (-20 ... 70 °C (-4 ... 158 °F)); < 4 µA/K (-40 ... -20 °C (-40 ... -4 °F)) |
| Frequency range | | field side into the control side: bandwidth with 0.5 $V_{pp}$ signal 0 ... 3 kHz (-3 dB)<br>control side into the field side: bandwidth with 0.5 $V_{pp}$ signal 0 ... 3 kHz (-3 dB) |
| Rise time | | 10 to 90 % ≤ 10 ms |
| **Galvanic isolation** | | |
| Input/Output | | basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 $V_{eff}$ |
| Input/power supply | | basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 $V_{eff}$ |
| Output/power supply | | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 $V_{eff}$ |
| **Indicators/settings** | | |
| Display elements | | LED |
| Labeling | | space for labeling at the front |
| **Directive conformity** | | |
| Electromagnetic compatibility | | |
| Directive 2014/30/EU | | EN 61326-1:2013 (industrial locations) |
| **Conformity** | | |
| Electromagnetic compatibility | | NE 21:2017<br>EN 61326-3-2:2018 |
| Degree of protection | | IEC 60529 |
| Protection against electrical shock | | UL 61010-1:2012 |
| **Ambient conditions** | | |
| Ambient temperature | | -40 ... 70 °C (-40 ... 158 °F) |
| **Mechanical specifications** | | |
| Degree of protection | | IP20 |
| Connection | | spring terminals |
| Mass | | approx. 100 g |
| Dimensions | | 12.5 x 124 x 114 mm (0.5 x 4.9 x 4.5 inch) (W x H x D) , housing type A2 |
| Mounting | | on 35 mm DIN mounting rail acc. to EN 60715:2001 |
| **Data for application in connection with hazardous areas** | | |
| EU-type examination certificate | | CESI 06 ATEX 021 |
| Marking | | ⟨Ex⟩ II (1)G [Ex ia Ga] IIC<br>⟨Ex⟩ II (1)D [Ex ia Da] IIIC<br>⟨Ex⟩ I (M1) [Ex ia Ma] I |
| Output | | Ex ia |
| Supply | | |
| Maximum safe voltage | $U_m$ | 250 V AC (Attention! $U_m$ is no rated voltage.) |
| Equipment | | terminals 1+, 2- |
| Voltage $U_o$ | | 25.2 V |

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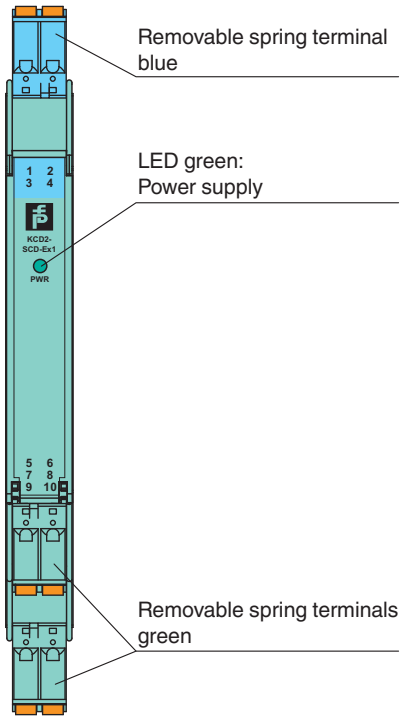
## Technical Data

| | |
|---|---|
| Current $I_o$ | 100 mA |
| Power $P_o$ | 630 mW |
| Internal capacitance $C_i$ | 5.7 nF |
| Internal inductance $L_i$ | negligible |
| Certificate | CESI 19 ATEX 021 X |
| Marking | Ⓔx II 3G Ex ec IIC T4 Gc |
| Galvanic isolation | |
| Input/Output | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Output/power supply | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Directive conformity | |
| Directive 2014/34/EU | EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-7:2015 |
| **International approvals** | |
| FM approval | |
| FM certificate | FM 18 CA 0116 X , FM 19 US 0117 X |
| Control drawing | 116-0469 (cFMus) |
| UL approval | E106378 |
| Control drawing | 116-0459 (cULus) |
| IECEx approval | |
| IECEx certificate | IECEx CES 06.0001X |
| IECEx marking | [Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I<br>Ex ec IIC T4 Gc |
| **General information** | |
| Supplementary information | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com. |

## Assembly

**Front view**




## Matching System Components

| | | |
|---|---|---|
|  | **KFD2-EB2** | Power Feed Module |

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## Matching System Components

| | | |
|---|---|---|
|  | **UPR-03** | Universal Power Rail with end caps and cover, 3 conductors, length: 2 m |
|  | **UPR-03-M** | Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m |
|  | **UPR-03-S** | Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m |
|  | **K-DUCT-BU** | Profile rail, wiring comb field side, blue |
|  | **K-DUCT-BU-UPR-03** | Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue |

## Accessories

| | | |
|---|---|---|
|  | **KC-CTT-5GN** | Terminal block for KC modules, 2-pin spring terminal, with test sockets, green |
|  | **KC-CTT-5BU** | Terminal block for KC modules, 2-pin spring terminal, with test sockets, blue |
|  | **KC-CTT-3GN2BU** | Terminal block for KC modules, 2-pin spring terminal, with test sockets |
|  | **KF-CP** | Red coding pins, packaging unit: 20 x 6 |

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